

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 11 OCT 2004

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Applicant's or agent's file reference PC443AG	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/EP 03/06928	International filing date (day/month/year) 30.06.2003	Priority date (day/month/year) 03.07.2002
International Patent Classification (IPC) or both national classification and IPC B29C47/10		
Applicant F.LLI MARIS S.P.A.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 03.02.2004	Date of completion of this report 12.10.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Van Nieuwenhuize, O Telephone No. +31 70 340-3435 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP 03/06928

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7 as originally filed

Claims, Numbers

1-9 received on 01.06.2004 with letter of 31.05.2004

Drawings, Sheets

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/EP 03/06928

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

- D1: US-A-4906421
- D2: Adhesives & Sealants Industry, June/July 1998, pages 44 - 51
- D3: EP-A-0774481
- D4: EP-A-0531607
- D5: JP-A-61143439
- D6: JP-A-01234424
- D7: US-A-4028302
- D8: JP-A-1215880
- D9: US-A-3978013
- D10: US-A-4431598

2. In respect of Article 6 PCT the following is observed.

2.1 The vague and imprecise statement in the description on page 7 implies, that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity when used to interpret the claims, cf. the PCT Guidelines, 5.30.

2.2 Due to its first time use the expression "the other ingredients" formally causes a lack of clarity of the subject-matter of claim 1.

3. The following is stated under reference to paragraph 2 of this communication, whereby it is to be noted, that unclear terms cannot be used for unambiguously distinguishing over prior art for the assessment of novelty or inventive step.

3.1 State of the art is a method for the continuous production of a composition comprising a rubber and a solvent with the use of a dual-screw extruder is known, which method provides for the addition of at least a fraction of the solvent at a point of the extruder, that is downstream of the initial section, at the outlet of the extruder the temperature produced by dissolving the other ingredients in the

solvent being less than the boiling point of the solvent, see for instance document D7, cf. table 1.

The subject-matter of claim 1 differs therefrom in that said composition comprises a hydrocarbon resin.

Therefore the subject-matter of claim 1 for as far as can be understood is novel and claim 1 meets the requirements of Article 33(2) PCT.

Since tackifying is dependently claimed, cf. claim 7, the objective problem underlying claim 1 as deduced from the description on page 2, last paragraph can only be seen as to provide certain material properties, cf. page 2, last line.

It is however well known in the art to provide certain material properties, such as tack by adding a hydrocarbon resin to a rubber, see for instance documents D9, cf. col. 1, lines 63, 64 or D10, cf. col. 3, line 65 or examples 1 - 7 or D1, cf. col. 11, paragraph 5, D2 paragraph 2, for which reason the incorporation of this well known feature in the teaching of D4 is a straightforward possibility in order to solve the objective problem underlying claim 1.

Therefore the subject-matter of claim 1 does not involve the exercise of an inventive step and claim 1 does not meet the requirements of Article 33(3) PCT.

4. Dependent claims 2 - 9 do not appear to contain additional features which, in combination with the features of any claim to which they refer, could support the presence of an inventive step, the reasons being as follows:
- first solvent addition at least 4D, cf. claim 2, is known, cf. D2, page 46, right column, lines 1 - 3 or D7, col. 6, lines 41 - 45;
 - a plurality of points of downstream solvent addition, cf. claim 3, is known, cf. D2, fig. 5, or D7, col. 6, lines 41 - 45;
 - broad temperature ranges of 60 - 120 °C and 40 - 80 °C, cf. claim 4, are expected to be selected in accordance with the circumstances without the unexpected or surprising effects;
 - downstream feeding of hydrocarbon resin, cf. claim 5, is known from D2, cf.

page 46;

- a rubber selected in accordance with claim 6, is known from D1, cf. examples, D2, cf. figure 5 and D8, cf. abstract, D9, cf. claim 1;
- a tackifier, cf. claim 7, is known from D1, cf. examples, D2, cf. page 46 and D8, cf. abstract, D9, cf. claim 1;
- a solvent selected in accordance with claim 8, is known from D1, cf. col. 7, last paragraph, or D9, cf. col. 2, line 21;
- corotating dual-screw extruders, cf. claim 9, are known from D1 - D7.

5. Claims 1 - 9 meet the requirement of Article 33(4) PCT.

6.1 The description is not in conformity with the claims as required by Rule 5.1(a)(iii) PCT.

6.2 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the closest prior art documents or state of the art documents is not mentioned in the description, nor are these documents identified therein.

CLAIMS

1. A method for the continuous production of a composition comprising rubber (20), a hydrocarbon resin (22), and a solvent (26), with the use of a dual-screw extruder (10),

which method provides for the addition of at least a fraction of the solvent (26) at a point of the extruder (10) that is downstream of the initial section, at the outlet of the extruder (10) the temperature of the composition produced by dissolving the other ingredients in the solvent (26) being less than the boiling point of the solvent (26).

2. A method according to Claim 1, in which a first addition of solvent (26) takes place at a distance of at least 4 D from the initial section of the extruder (10).

3. A method according to Claim 1 or Claim 2 in which the solvent (26) is added at a plurality of different points disposed downstream of the initial section of the extruder (10).

4. A method according to anyone of the preceding Claims in which, in the portion of the extruder (10) that is upstream of the point at which the first addition of solvent (26) is performed, the temperature is kept within a range of between 60°C and 120°C whereas, in the portion of the extruder (10) that is downstream of the point at which the first addition of solvent (26) is performed, the temperature is kept within a range of between 40°C and 80°C, the temperature in the upstream portion being greater than that prevailing in the downstream portion.

5. A method according to any one of the preceding claims, which provides for the addition of at least a fraction of

the hydrocarbon resin (22) at a point of the extruder (10) that is downstream of the initial section.

6. A method according to any one of the preceding claims in which the rubber (20) is selected from the group consisting of natural rubbers, synthetic rubbers and mixtures thereof.

7. A method according to any one of the preceding claims in which the hydrocarbon resin (22) has tackifying properties.

8. A method according to any one of the preceding claims in which the solvent (26) is selected from the group consisting of hexane, pentane, dichloropropane, and mixtures thereof.

9. A method according to any one of the preceding claims in which the dual-screw extruder (10) is of the co-rotating type.